

ADVISORY BOARD FOR AERONAUTICS

LETTER

FROM THE

SECRETARY OF THE SMITHSONIAN INSTITUTION

TRANSMITTING

A MEMORANDUM IN RELATION TO A JOINT
RESOLUTION PROVIDING FOR THE APPOINT-
MENT OF AN ADVISORY COMMITTEE FOR
AERONAUTICS IN THE UNITED STATES
TOGETHER WITH A REPORT ON EUROPEAN
AERONAUTICAL LABORATORIES



PRESENTED BY MR. TILLMAN

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LETTER OF TRANSMITTAL.

SMITHSONIAN INSTITUTION,
Washington, February 1, 1915.

DEAR SIR: I have the honor to acknowledge the receipt of your letter of January 30, 1915, asking for a report showing what action has already been taken by the Smithsonian Institution regarding the joint resolution providing for the appointment of an advisory committee for aeronautics in the United States.


In response thereto I have the honor to submit the inclosed memorandum.

I am transmitting, also, a report on European aeronautical laboratories, which gives an outline of what was being done in Europe prior to the outbreak of the present war.

Very respectfully, yours,

CHARLES D. WALCOTT,
Secretary.

HON. BENJAMIN R. TILLMAN,
*Chairman Committee on Naval Affairs,
United States Senate, Washington, D. C.*



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A NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS.

HISTORICAL NOTE.

On May 1, 1913, the regents of the Smithsonian Institution authorized Secretary Walcott, with the approval of the executive committee, to reopen the Langley Aerodynamical Laboratory; to secure an advisory committee; to add, as means were provided, other laboratories and agencies; to group them into a bureau organization; and to secure the cooperation with them of the Government and other agencies.

The first action taken by the secretary was to request the approval of the President of the United States of the designation of representatives from the Departments of War, Navy, Agriculture, and Commerce to serve on an advisory committee. On May 9, 1913, the President approved the request and the departments named selected their members for the committee. A number of civilians were also elected for membership. The committee was then organized, but before effective work could be undertaken a decision made by the Comptroller of the Treasury stated that under section 9 of the act approved March 4, 1909 (35 Stat., 1027), it was unlawful for any Government employee to serve on such an advisory committee without authority being granted by Congress.¹

The Board of Regents of the Smithsonian Institution also authorized the Secretary to submit an estimate to Congress for the carrying on of operations in such a laboratory. The estimate was made and explained to the Committee on Appropriations of the House of Representatives in January, 1914. (Hearings, Sundry Civil Bill, 63d Cong., 2d sess., pp. 419-429.) A statement was also made in relation to the desirability of having authority to appoint an advisory committee for aeronautics.

No action was taken by the committee or by Congress, and the United States remains to-day the only first-class nation in the world that does not have an advisory committee or board on aeronautics and one or more aeronautical laboratories devoted to the solution of problems which the manufacturer and practical aviator meet with in connection with the advancement of aerial flight.

America invented and led in the early development of the heavier-than-air flying machine, through Langley, the Wright brothers, Curtiss, and others, and a small grant was made by the Congress to the Navy Department for experimental work in aeronautics, but nothing was done to encourage or assist American inventors and manufacturers beyond the purchase of a few machines.

SEC. 9. That hereafter no part of the public moneys, or of any appropriation heretofore or hereafter made by Congress, shall be used for the payment of compensation or expenses of any commission, council, board, or other similar body, or any members thereof, or for expenses in connection with any work or the results of any work or action of any commission, council, board, or other similar body, unless the creation of the same shall be or shall have been authorized by law; nor shall there be employed by detail, hereafter heretofore made, or otherwise personal services from any executive department or other Government establishment in connection with any such commission, council, board, or other similar body.

EUROPEAN COUNTRIES. -

As soon as Americans demonstrated the feasibility of flight by heavier-than-air machines France took the matter up promptly and utilized all the available agencies, including the army, navy, and similar establishments, both public and private. Large sums were devoted to the research work by wealthy individuals and rapid advance was made in the art.

Germany quickly followed, and a fund of \$1,700,000 was raised by subscription, and experimentation directed by a group of technically trained and experienced men.

Later Great Britain established an advisory board, placing the manufacturing and the operation of flying machines in the charge of the army and navy, and turning over the working out of the numerous problems arising to the advisory board, an annual appropriation of \$25,000 being made for expenses and investigations.

Russia also began serious investigations and construction under the Government, and encouraged private enterprise.

When the European War broke out, France had, exclusive of dirigibles, about 1,400 aeroplanes, Germany 1,000, Russia 800, Great Britain 400, the United States 23. The Navy has 12 of these.

ADVISORY COMMITTEE.

The joint resolution authorizing the appointment of an advisory committee for aeronautics is based on the experience of the advisory committee of Great Britain and study given to the subject before asking the appointment of an advisory committee for the Langley Aerodynamical Laboratory of the Smithsonian Institution.

The amount of the appropriation asked is not large, but it will be sufficient to test the working possibilities of the committee, and the results obtained by it will determine if it will be of sufficient value to warrant an increase in the appropriations.

At the present time the United States is proposing to appropriate a million dollars for the Navy and a large amount for the Army for the purchase and operation of flying machines, but there is no provision in law authorizing the appointment of an advisory committee for aeronautics and thus leading to the utilization of all of the resources of the Government and of private laboratories and manufacturing plants, as far as may be, in the development of aviation in America.

The Navy Department will go ahead as best it can, the War Department as it can, and private interests as means and opportunity permit. With no central body or clearing house for the various agencies, no place to meet and discuss problems of research, no place to try out new ideas, and no body of expert advisers for the Government and civil interests, aeronautics in America will be simply drifting and trusting to luck that all will come out well through sporadic and scattered efforts. What is needed is teamwork that may be rendered possible by a wisely selected advisory committee.

A national advisory committee for aeronautics can not fail to be of inestimable service in the development of the art of aviation in America. Such a committee to be effective should be permanent.

and attract to its membership the most highly trained men in the art of aviation and such technical sciences as are connected with it.

Through the agency of subcommittees the main advisory committee could avail itself of the advice and suggestion of a large number of technical and practical men.

The work for which the British advisory committee was appointed was defined in the announcement made by the prime minister in the House of Commons on May 5, 1909, which was as follows:

The Government is taking steps toward placing its organization for aerial navigation on a more satisfactory footing. As the result of a report made by the committee on imperial defense, the work of devising and constructing dirigible airships and aeroplanes has been apportioned between the navy and the army. The Admiralty is building certain dirigibles, while certain others of a different type will be constructed at the war office balloon factory at Aldershot, which is about to be reorganized for the purpose. The investigation and provision of aeroplanes are also assigned to the war office. With a view to securing that the highest scientific talent shall be brought to bear on the problems which will have to be solved in the course of the work of the two departments, the national physical laboratory has been requested to organize at its establishment at Teddington a special department for continuous investigation, experimental and otherwise, of questions which must from time to time be solved in order to obtain adequate guidance in construction.

It is no part of the general duty of the advisory committee for aeronautics either to construct or to invent. Its function is not to initiate, but to consider what is initiated elsewhere, and is referred to it by the executive officers of the navy and army construction departments. The problems which are likely to arise in this way for solution are numerous, and it will be the work of the committee to advise on these problems and to seek their solution by the application of both theoretical and experimental methods of research.

The work desired thus falls into three sections:

(1) The scientific study of the problems of flight, with a view to their practical solution.

(2) Research and experiment into these subjects in a properly equipped laboratory with a trained staff.

(3) The construction and use of dirigibles and aeroplanes, having regard mainly to their employment in war.

The advisory committee are to deal with the first section, and also to determine the problems which the experimental branch should attack, and discuss their solutions and their application to practical questions. The second section represents the work referred to the laboratory, while the duties connected with the third section remain with the admiralty and the war office.

AGENCIES, RESOURCES, AND FACILITIES AVAILABLE FOR THE WORK OF AN ADVISORY COMMITTEE.

SMITHSONIAN INSTITUTION.

The advisory committee may be provided by the Smithsonian institution with suitable office headquarters, an administrative and accounting system, library and publication facilities, lecture and assembly rooms, and museum space for aeronautic models. The Langley Aerodynamical Laboratory has an income provided for it not to exceed \$10,000 the first year and \$5,000 annually for five years.

UNITED STATES BUREAU OF STANDARDS.

For the exact determination of aerophysical constants, the calibration of instruments, the testing of aeronautic engines, propellers, and materials of construction, the cooperation of the Department of Commerce, by the United States Bureau of Standards, would be

invaluable. This bureau has a complete equipment for studying the mechanics of materials and structural forms used in air craft; for standardizing the physical instruments—thermometers, barographs, pressure gauges, etc.—used in air navigation; and for testing the power, efficiency, etc., of aeronautical motors in a current of air representing the natural conditions of flight.

In these general branches the technical staff of the bureau is prepared to undertake such theoretical and experimental investigations as may come before the advisory committee on behalf of either the Government or private individuals or organizations.

UNITED STATES WEATHER BUREAU.

For studies of and reports on every phase of aeronautic meteorology, besides the usual forecasting, the committee should have the cooperation of the Department of Agriculture, through the United States Weather Bureau. This bureau has an extensive library of works on or allied to aeronautics, an instrument division for every type of apparatus for studying the state of the atmosphere, a whirling table of 30-foot radius for standardizing anemometers, a complete kite equipment with power reel, and a sounding balloon equipment with electrolytic-hydrogen plant, all of which are available for scientific investigations. For special forecasts, anticipating field tests or cross-country voyages, the general service of the bureau may be called upon.

WAR AND NAVY DEPARTMENTS.

These departments, while especially interested in aeronautics for national defense, can be of service in advancing the general science. Each has an aeronautical library; each has an official representative in foreign countries who reports periodically on every important phase of the art, whether civil or military; each has an assignment of officers who design, test, and operate air craft and who determine largely the scope and character of their development; each has its aeronautic station equipped with machines in actual service throughout the year. Besides various aviation establishments, the War Department has a balloon plant at Fort Myer, Va., and at Omaha, Nebr. the Navy has its marine model basin, useful for special experiments in aeronautics; its extensive shops at the Washington Navy Yard available for the alteration or repair of air craft, or the manufacture of improved military types; and at Fort Myer, three lofty open-work steel towers suitable for studies in meteorology or aerodynamics in the natural wind. Furthermore, the Navy Department has detailed an officer for special research in aeronautics at one of the principal engineering schools.

Because of their fundamental interest in aeronautics each of these departments would undoubtedly cooperate most effectively and be able to place at the service of the committee one or more skilled aviators and aeroplanes for systematic experimentation.

CONCLUSION.

There does not appear to be any good reason why America should not be fully abreast of, if not in advance of, other nations in the development of aeronautics in a practical and useful way, not only

for purposes of war but for other activities where great speed in transit through the air, over mountains, bodies of water, or like obstacles is desirable. If as rapid progress is made in the coming decade as has been made in the past 10 years the flying machine will become as permanent a part of the means of rapid and safe transportation, within certain limitations, as the automobile to-day is in land transportation.

While it is recognized that an advisory committee for aeronautics will not create or invent new machines, it may be the means of encouraging both governmental and civil activities in such a manner as to lead to results of great value to the Government and all who are interested in the development of successful aviation as an agency of peace as well as of war.

At the present time the thought of aviation is in connection with war; but there is no apparent reason why, as in the case of the automobile, the flying machine will not be of far greater service in peaceful pursuits than in war.



